HIGHLIGHTS

TEAM Leafy Spurge and Theodore Roosevelt National Park:

A PARTNERSHIP FOR THE MANAGEMENT AND CONTROL OF LEAFY SPURGE

TEAM Leafy Spurge, an integrated pest management (IPM) research and demonstration project, is based on the premise that IPM provides the flexibility needed to control agricultural plant and insect pests across broad regions. To demonstrate the effectiveness of the IPM approach for controlling the noxious weed leafy spurge (*Euphorbia esula* L.) over a wide and varied expanse, TEAM Leafy Spurge chose the Little Missouri River drainage, which spans portions of North Dakota, South Dakota, Montana, and Wyoming, as its primary study area because of its complex variety of ecological conditions, all impacted by this invasive plant species (fig. 1). Fortunately, Theodore Roosevelt National Park (North Dakota) occurs within the TEAM Leafy Spurge study area.

Figure 1. About 120 miles (193 km) from Theodore Roosevelt National Park, this landscape in the Missouri River drainage is colored by the yellow bracts of the invasive alien, leafy spurge. The plant displaces native vegetation in prairie habitats.
AGRICULTURAL RESEARCH SERVICE

Figure 2. *Aphthona lacertosa*, flea beetles used in TEAM Leafy Spurge's integrated pest management project, gobble up leafy spurge. Over 15 years, more than 18 million of the beetles have been released within Theodore Roosevelt National Park.
AGRICULTURAL RESEARCH SERVICE

TEAM Leafy Spurge is cochaired and overseen by the USDA Agricultural Research Service in cooperation with the USDA Animal and Plant Health Inspection Service. Together these federal partners make a powerful team to address the leafy spurge problem on a multistate basis. Additional federal bureaus participating in the project are the Bureau of Land Management, USDA Forest Service, National Park Service, Bureau of Indian Affairs, Bureau of Reclamation, and U.S. Geological Survey. State partners are state departments of agriculture and other agencies, cooperative extension services, land grant universities, and county weed managers; private-sector representatives include landowners and ranchers.

Over its six-year life, the project's collaborative emphasis has enabled participants to share resources and expertise, aptly demonstrating how partnerships and teamwork can be used to implement IPM strategies and achieve successful leafy spurge control over broad regions. In particular, the effort has helped demonstrate how *Aphthona* spp. flea beetles can be affordable and sustainable biocontrol agents of leafy spurge in much of the study area (fig. 2), with further containment accomplished through judicious herbicide applications and multispecies grazing.

An instrumental partner in the project was Theodore Roosevelt National Park, a park with serious leafy spurge problems. Over the past 15 years the park has released more than 18 million *Aphthona* flea beetles at 3,534 sites for leafy spurge control. In addition, the park is a strong advocate for the judicious use of herbicides, applied from sprayers attached to backpacks, all-terrain vehicles, and trucks. Helicopter spraying is also conducted in remote backcountry areas. The park has also held numerous field days involving the collection and redistribution of *Aphthona* flea beetles for local farmers and ranchers. This has resulted in a win-win situation for the National Park Service and local communities.

Leafy spurge is a formidable opponent that cannot be controlled or eliminated by any single entity or management practice. Rather, a collaborative, integrated, and regional approach is essential to solving this costly problem. Projects such as the one being conducted at Theodore Roosevelt National Park are using scientifically valid, ecologically based IPM strategies that can achieve effective, affordable, and sustainable leafy spurge control.

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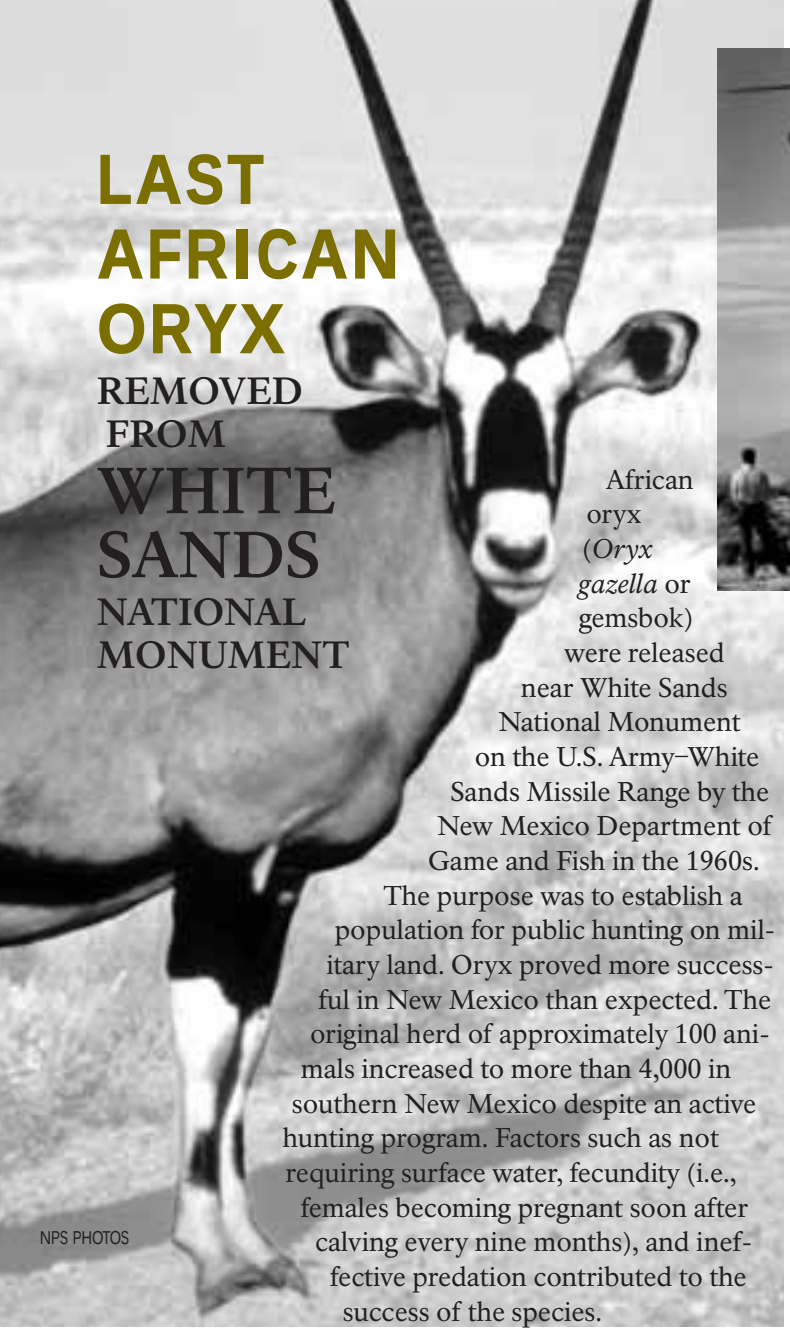
LAST AFRICAN ORYX REMOVED FROM WHITE SANDS NATIONAL MONUMENT



NPS PHOTOS

African oryx (*Oryx gazella* or gemsbok) were released near White Sands National Monument on the U.S. Army–White Sands Missile Range by the New Mexico Department of Game and Fish in the 1960s. The purpose was to establish a population for public hunting on military land. Oryx proved more successful in New Mexico than expected. The original herd of approximately 100 animals increased to more than 4,000 in southern New Mexico despite an active hunting program. Factors such as not requiring surface water, fecundity (i.e., females becoming pregnant soon after calving every nine months), and ineffective predation contributed to the success of the species.

The National Park Service (NPS) completed a 67-mile boundary fence in 1996 to exclude oryx from White Sands National Monument. However, animals contained within the fence increased in population, with concomitant impacts by the 450-pound animals to soil and vegetation. At the time the population was increasing at a rate of 20 to 30% per year; if left uncontrolled the situation would have caused severe resource degradation. Removing the oryx from NPS land was complicated by the lack of roads in the 144,000-acre (58,320-ha) monument and the oryx's habit of disbursing widely over the desert.

A draft environmental assessment was prepared in 1998, presenting the preferred alternative of NPS staff shooting the estimated 140 to 190 animals. Thereafter, a critical news article resulted in an organized letter-writing campaign with 161 respondents from coast to coast objecting to the proposed management action.

As a result of public input, oryx removal plans shifted to more expensive and dangerous nonlethal management methods. These included the use of helicopters and all-terrain vehicles for herding oryx to openings in the fence, and also shooting them with anesthesia-filled darts followed by loading the drugged animals in a sling attached to a helicopter for transport out of the monument. Park staff and partners tried constructing one-way gates in the boundary fence that would allow the animals to leave the monument, but the attempt was not successful. Contraceptive drug darting to prevent further expansion of the population was not considered feasible.

Several partners assisted monument staff in carrying out the helicopter sling-loading operation over several years. They included the NPS Biological Resource Management Division, Carlsbad Caverns and Mesa Verde National Parks, New Mexico Department of Game and Fish, U.S. Army–White Sands Missile Range, and the U.S. Fish and Wildlife Service. Funding for the operation came from the Natural Resource Preservation Program and the Recreational Fee Demonstration Program.

The initial herding and sling-loading operation was effective, resulting in the removal by nonlethal means of 174 oryx from White Sand National Monument from 1999 to 2001. Nevertheless, helicopter search time to locate oryx increased greatly as the animals became scarcer, and the cost per animal escalated. Subsequently, the National Park Service publicly released an environmental assessment in November 2001 recommending complete removal of the relatively few remaining oryx by lethal means, with support of the New Mexico Department of Game and Fish. The monument received 39 letters supporting the project and 9 that either opposed it or confused it with other management issues, and the National Park Service signed a "Finding of No Significant Impact" to begin the final phase of control.

The project was well covered by regional media, as well as the *Wall Street Journal* and *High Country News*. Twenty-five animals have been shot to date and no fresh sign has been detected, suggesting that oryx no longer roam within the fenced portion of White Sands National Monument. Long-term, annual maintenance by tracking and shooting (if any oryx are detected) is planned, as is maintaining the 67-mile fence indefinitely.

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